

Claims

What is claimed is:

- 1 1. A method for communication between a first computer operating in a first object-
2 oriented run-time environment and a second computer operating in a second, different
3 object-oriented run-time environment, the method comprising:
4 sending a first message with an object identification and an action identification
5 from the first computer to the second computer;
6 identifying an object in the second run-time environment according to the
7 object identification;
8 determining an action representation of an action, according to the action
9 identification, in the second run-time environment for the identified object; and
10 executing the action using the action representation.
- 1 2. The method of claim 1 further comprising verifying an existence of an action,
2 according to the action identification, in the identified object in the second run-time
3 environment.
- 1 3. The method of claim 1 wherein executing the action includes:
2 converting a request identification that is part of the action identification to a
3 second representation for the second run-time environment using a look-up table; and
4 inserting the further representation into the second application.
- 1 4. The method of claim 1 further comprising returning to the first computer a second
2 message as a confirmation message with an object identification and a response
3 identification.
- 1 5. The method of claim 4 further comprising displaying, using the first computer, at
2 least a portion of the response identification.

- 1 6. The method of claim 1, wherein executing the action further comprises:
2 extracting a second property representation of a property identified by the
3 action identification;
4 converting the second property representation to a first property representation
5 for the first run-time environment; and
6 returning to the first computer a second message as a result message with an
7 object identification and a response identification, the response identification
8 indicating the further first property representation for the first run-time environment.
- 1 7. The method of claim 4 further comprising displaying, using the first computer, at least
2 a portion of the response identification.
- 1 8. The method of claim 1, wherein executing the action further comprises:
2 converting a function identification and a parameter identification of the action
3 identification to function and parameter representations for the second run-time
4 environment;
5 performing a function that is identified by the action identification using the
6 function and parameter representations for the second run-time environment;
7 converting parameters that result from performing the function into parameter
8 representations for the first run-time environment; and
9 returning a second message to the first computer with an object identification
10 and a response identification, with the response identification indicating the parameter
11 representations.
- 1 9. The method of claim 8 wherein converting parameters uses a look-up table.

- 1 10. A computer program product used in a communication system of a first computer
2 with a first object-oriented run-time environment and a second computer with a
3 second, different object-oriented run-time environment, wherein the first computer
4 sends a first message with an object identification and an action identification to the
5 second computer, the computer program product embodied on a carrier and having
6 computer code instructions to cause a processor of the second computer to interpret
7 the first message, the instructions comprising:
8 code for identifying an object in the second run-time environment according to
9 the object identification;
10 code for determining a representation of an action, according to the action
11 identification, in the second run-time environment for the identified object; and
12 code for executing the action using the representation.
- 1 11. The computer program product of claim 10 wherein the instructions further comprise
2 code for verifying the existence of an action, according to the action identification, in
3 the identified object in the second run-time environment.
- 1 12. The computer program product of claim 11 wherein the instructions further comprise
2 code for returning a second message as a confirmation message to the first computer,
3 the second message including an object identification and a response identification.
- 1 13. The computer program product of claim 12 wherein the code for executing includes:
2 code for converting a request identification that is part of the action
3 identification to a further representation for the second run-time environment; and
4 code for inserting the further representation into the second application.
- 1 14. The computer program product of claim 13 wherein the code for converting uses a
2 look-up table.
- 1 15. The computer program product of claim 12 wherein the code for executing comprises:

2 code for extracting a second property representation of a property identified by
3 the action identification;
4 code for converting the second property representation to a first property
5 representation for the first run-time environment; and
6 code for returning to the first computer a second message as a result message
7 with an object identification and a response identification, the response identification
8 indicating the further first property representation for the first run-time environment.

1 16. The computer program product of claim 12 wherein the code for executing comprises:

2 code for converting a function identification and a parameter identification of
3 the action identification to function and parameter representations for the second run-
4 time environment;

5 code for performing a function that is identified by the action identification
6 using the function and parameter representations for the second run-time
7 environment;

8 code for converting parameters that result from performing the function into
9 parameter representations for the first run-time environment; and

10 code for returning a second message to the first computer with an object
11 identification and a response identification, with the response identification indicating
12 the parameter representations.

- 1 17. A computer communication system comprising a first computer operating in a first
2 object-oriented run-time environment and a second computer operating in a second,
3 different object-oriented run-time environment, wherein the first computer sends a
4 first message with an object identification and an action identification to the second
5 computer, the second computer comprising:
6 a first module to identify an object in the second run-time environment
7 according to the object identification;
8 a second module to verify an existence of an action identified in the action
9 identification in the identified object in the second run-time environment;
10 a third module to determine a representation of the action in the second run-
11 time environment for the identified object; and
12 a fourth module to execute the action by using the representation and to return a
13 second message as confirmation message to the first computer, the second message
14 with object identification and response identification.
- 1 18. The computer communication system of claim 17 wherein the fourth module is
2 adapted to (a) convert a request identification that is part of the action identification to
3 a further representation for the second run-time environment using a look-up table,
4 and (b) insert the further representation into the second application.
- 1 19. The computer communication system of claim 17 wherein the fourth module is
2 adapted to:
3 extract a second property representation of a property identified by the action
4 identification;
5 convert the second property representation to a first property representation for
6 the first run-time environment; and
7 return to the first computer a second message as a result message with an object
8 identification and a response identification, the response identification indicating the
9 further first property representation for the first run-time environment.

- 1 20. The computer communication system of claim 17 wherein the fourth module is
2 adapted to:
- 3 convert a function identification and a parameter identification of the action
4 identification to function and parameter representations for the second run-time
5 environment;
- 6 perform a function that is identified by the action identification using the
7 function and parameter representations for the second run-time environment;
- 8 convert parameters that result from performing the function into parameter
9 representations for the first run-time environment; and
- 10 return a second message to the first computer with an object identification and a
11 response identification, with the response identification indicating the parameter
12 representations.